

What is claimed is:

1. A mask-frame assembly for a color cathode-ray tube, comprising:

first and second support members spaced out a predetermined distance;

first and second resilient support members installed between the first and second

support members supporting the first and second support members, each of the first and  
second resilient support members comprising supports fixed to the first and second support  
members and a connecting portion connecting the supports;

a mask installed at the first and second support members such that tension is applied  
thereto, the mask comprising a plurality of electron beam through holes; and

a compensating unit connected between the first and second support members or  
the supports of the resilient support members between each connecting portion and the  
mask, the compensating unit being formed of a material having a lower thermal expansion  
coefficient than that of the first and second resilient support members.

2. The mask-frame assembly of claim 1, wherein the compensating unit  
comprises a pair of flat bars each having both ends fixed to the supports of the respective  
first and second resilient support members.

3. The mask-frame assembly of claim 2, wherein the compensating unit  
comprises a vibration reduction unit installed at each of the flat bars to reduce vibration  
thereof.

4. The mask-frame assembly of claim 1, wherein each of the first and second  
support members comprises a keeper supporting the mask and a flange extending inward  
from the edge of the keeper, and the compensating unit comprises a pair of bars each  
having both ends fixed to respective ones of the flanges of the first and second support  
members.

5. The mask-frame assembly of claim 1, wherein the compensating unit comprises a pair of bars each having both ends fixed to respective ends of the first and second support members.

5 6. The mask-frame assembly of claim 4, wherein the compensating unit comprises;

a first and second pair of first and second brackets extending from respective ends of the first and second support members in facing directions; and

10 a pair of bars each having both ends fixed to the respective pair of first and second brackets .

7. The mask-frame assembly of claim 6, further comprising coupling units fixing the bars to the respective pair of first and second brackets .

15 8. The mask-frame assembly of claim 7, wherein each coupling unit is one among a bolt and nut, a rivet, and screws formed at both ends of the respective bar and the respective pair of first and second brackets.

20 9. The mask-frame assembly of claim 1, wherein the compensating unit comprises a pair of support bars each having both ends screwed to the respective ends of the first and second support members.

25 10. The mask-frame assembly of claim 1, wherein each of the first and second support members comprises a keeper supporting the mask and a flange extending inward from the edge of the keeper, and the compensating unit comprises a pair of bars each having both ends fixed to respective ones of the keepers of the first and second support members.

11. The mask-frame assembly of claim 1, wherein a thermal expansion coefficient of the mask is greater than that of the compensating unit and is equal to or greater than that of the first and second resilient support members.

5 12. The mask-frame assembly of claim 1, wherein the mask comprises:  
a plurality of strips spaced out a predetermined distance, wherein the plurality of  
electron beam through holes are formed between the strips at predetermined pitches;  
real bridges for connecting the strips to one another, to separate the electron beam  
through holes which are formed in a same line ; and  
10 a plurality of dummy bridges extending from the strips to partition the electron beam  
through holes.

13. A mask-frame assembly for a color cathode-ray tube, comprising:  
a frame comprising first and second support members spaced out a predetermined  
15 distance, and first and second resilient support members installed between the first and  
second support members, supporting the first and second support members, each of the first  
and second resilient support members comprising supports fixed to the first and second  
supports and a connecting portion connecting the supports;

20 a mask installed at the first and second support members such that tension is applied  
thereto, the mask comprising a plurality of electron beam passage holes; and

a compensating unit connected between the first and second support members or  
the supports of the first and second resilient members between each connecting portion and  
the mask, the compensating unit being formed of a material having a lower thermal  
expansion coefficient than that of the first and second resilient support members,

25 wherein values of a length  $L$  of the frame, a sectional area  $A$  of the compensating  
unit, a difference in thermal expansion between each resilient support member and the  
compensating unit, a height  $H$  from a center of a height of each of the first and second  
resilient support members to the compensating unit, and a second order section modulus  $I$  in  
an  $X$  direction when first and second directions perpendicular to each other of the section of

each resilient support member are represented by X and Z, respectively, are set to satisfy  
 $0.1 \leq (A \times H^2 \times \Delta \alpha \times 10^4) / l$ .

14. The mask-frame assembly of claim 13, wherein the values are set to satisfy  
 $0.1 \leq (A \times H^2 \times \Delta \alpha \times 10^4) / l < 1$ .

15. The mask-frame assembly of claim 13, wherein the compensating unit comprises a pair of flat bars each having both ends fixed to the supports of the respective first and second resilient support members.

16. The mask-frame assembly of claim 15, wherein the compensating unit comprises a vibration reduction unit installed at each of the flat bars to reduce vibration thereof.

17. The mask-frame assembly of claim 16, wherein the vibration reduction unit comprises at least one via-hole formed at each flat bar and a corresponding vibration preventing member shakably installed in the via-hole.

18. The mask-frame assembly of claim 13, wherein each of the first and second support members comprises a keeper supporting the mask and a flange extending inward from the edge of the keeper, and the compensating unit comprises a pair of bars each having both ends fixed to respective ones of the flanges of the first and second support members.

19. The mask-frame assembly of claim 13, wherein the compensating unit comprises a pair of bars each having both ends fixed to respective ends of the first and second support members.

20. The mask-frame assembly of claim 13, wherein the compensating unit comprises;

a first and second pair of first and second brackets extending from respective ends of the first and second support members in facing directions; and

a pair of bars each having both ends fixed to the respective pair of first and second brackets .

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21. The mask-frame assembly of claim 13, wherein a thermal expansion coefficient of the mask is greater than that of the compensating unit and is equal to or greater than that of the first and second resilient support members.

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22. The mask-frame assembly of claim 13, wherein the mask comprises:

a plurality of strips spaced out a predetermined distance, wherein the plurality of electron beam through holes are formed between the strips at predetermined pitches;

real bridges for connecting the strips to one another, to separate the electron beam through holes which are formed in a same line ; and

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a plurality of dummy bridges extending from the strips to partition the electron beam through holes.

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23. A mask-frame assembly for a color cathode-ray tube, comprising:

a frame comprising first and second support members spaced out a predetermined distance, and first and second resilient support members installed between the first and second support members, supporting the first and second support members, each of the first and second resilient support members comprising supports fixed to the first and second supports and a connecting portion connecting the supports;

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a mask installed at the first and second support members such that tension is applied thereto, the mask comprising a plurality of electron beam passage holes; and

a compensating unit connected between the first and second support members or the supports of the first and second resilient members between each connecting portion and the mask so that the tension of the mask is transferred to the compensating unit during annealing of the frame and the mask and then the tension is re-transferred from the

compensating unit to the mask after cooling, thereby maintaining an initial tension of the mask.

24. The mask-frame assembly of claim 23, wherein the compensating unit comprises a vibration reduction unit to reduce vibration thereof.

25. The mask-frame assembly of claim 23, wherein a thermal expansion coefficient of the mask is greater than that of the compensating unit and is equal to or greater than that of the first and second resilient support members.

26. The mask-frame assembly of claim 23, wherein the mask comprises:  
a plurality of strips spaced out a predetermined distance, wherein the plurality of electron beam through holes formed between the strips at predetermined pitches;  
real bridges for connecting the strips to one another, to separate the electron beam through holes which are formed in a same line ; and  
a plurality of dummy bridges extending from the strips to partition the electron beam through holes.

27. The mask-frame assembly of claim 4, wherein the bars are formed on surfaces of the flanges facing away from the mask.

28. The mask-frame assembly of claim 4, wherein the bars are formed on surfaces of the flanges facing the mask.

29. The mask-frame assembly of claim 18, wherein the bars are formed on surfaces of the flanges facing away from the mask.

30. The mask-frame assembly of claim 18, wherein the bars are formed on surfaces of the flanges facing the mask.

31. The mask-frame assembly of claim 2, wherein the bars are fixed to surfaces of the supports of the first and second resilient support members which face the supports of the other one of the first and second resilient support members.

5 32. The mask-frame assembly of claim 2, wherein the bars are fixed to surfaces of the supports of the first and second resilient support members which face away from the supports of the other one of the first and second resilient support members.

10 33. The mask-frame assembly of claim 15, wherein the bars are fixed to surfaces of the supports of the first and second resilient support members which face the supports of the other one of the first and second resilient support members.

15 34. The mask-frame assembly of claim 15, wherein the bars are fixed to surfaces of the supports of the first and second resilient support members which face away from the supports of the other one of the first and second resilient support members.

20 35. The mask-frame assembly of claim 8, wherein each coupling unit comprises screws formed at both ends of the respective bar and the respective pair of first and second brackets, and the screws formed at both ends of each respective bar spirals in an opposite direction.

36. The mask-frame assembly of claim 1, wherein the compensating unit comprises:

25 a pair of bars connected between the first and second support members or the supports of the first and second resilient members; and

a vibration reduction unit attached to each bar to reduce a vibration thereof.

37. The mask-frame assembly of claim 36, wherein the vibration reduction unit comprises:

at least one via-hole formed in each bar and a corresponding vibration preventing member movably installed in the via-hole.

38. The mask-frame assembly of claim 37, wherein each vibration preventing member comprises:

a body which has a smaller diameter than the corresponding via-hole; and heads respectively formed at each end of each body, to prevent the corresponding body from coming out of the corresponding via-hole.

39. A mask-frame assembly for a color cathode-ray tube, comprising:

a frame comprising first and second support members spaced out a predetermined distance, and first and second resilient support members installed between the first and second support members, supporting the first and second support members, each of the first and second resilient support members comprising supports fixed to the first and second supports and a connecting portion connecting the supports;

a mask installed at the first and second support members such that tension is applied thereto, the mask comprising a plurality of electron beam passage holes; and

a compensating unit in which the tension of the mask is transferred to the compensating unit during annealing of the frame and the mask and then the tension is re-transferred from the compensating unit to the mask after cooling, thereby maintaining an initial tension of the mask.